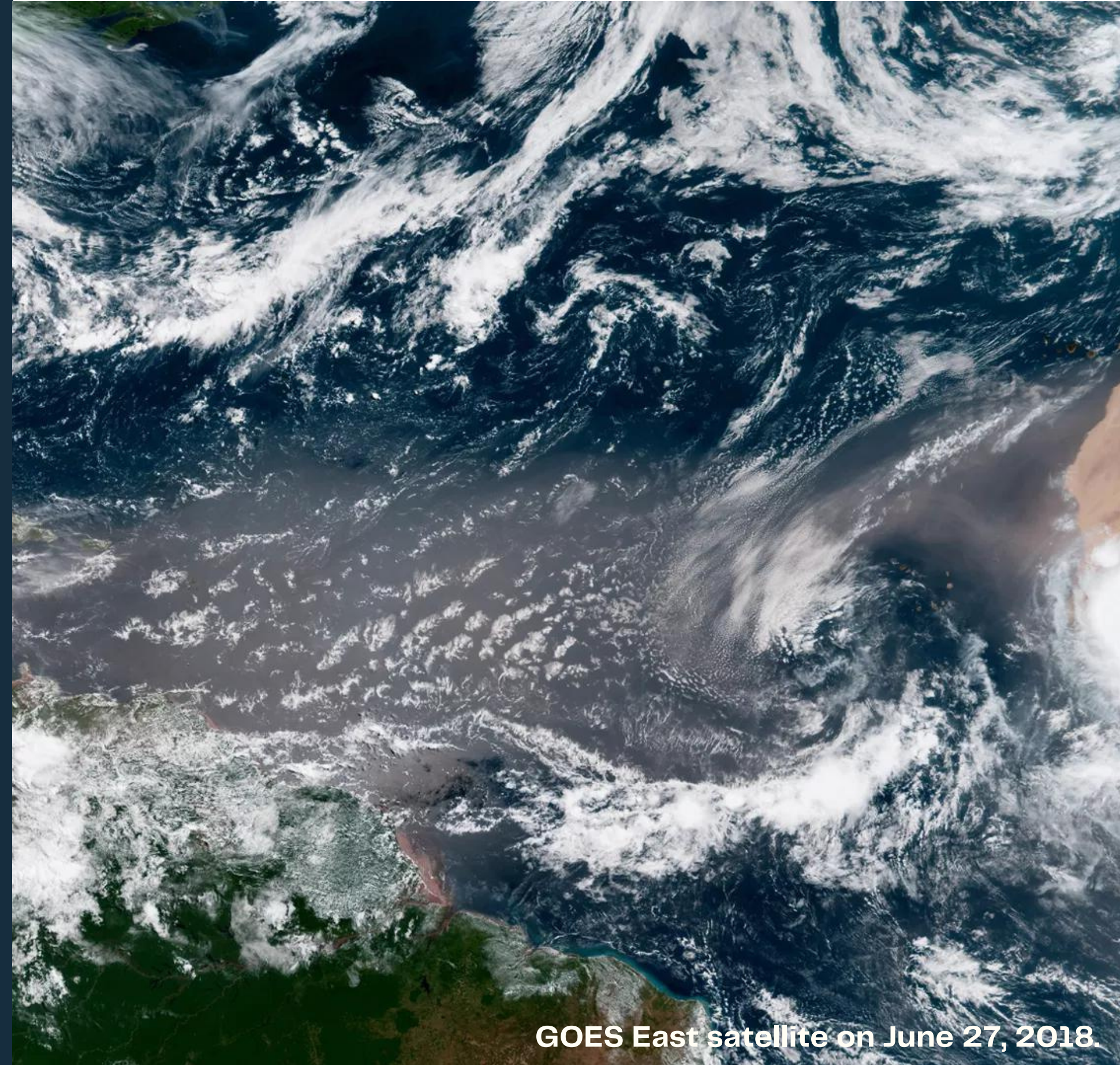


# The iron cycle in a changing climate at the Barcelona Supercomputing Center

**Elisa Bergas-Massó**

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Douglas Hamilton

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Barcelona Supercomputing Center



GOES East satellite on June 27, 2018.



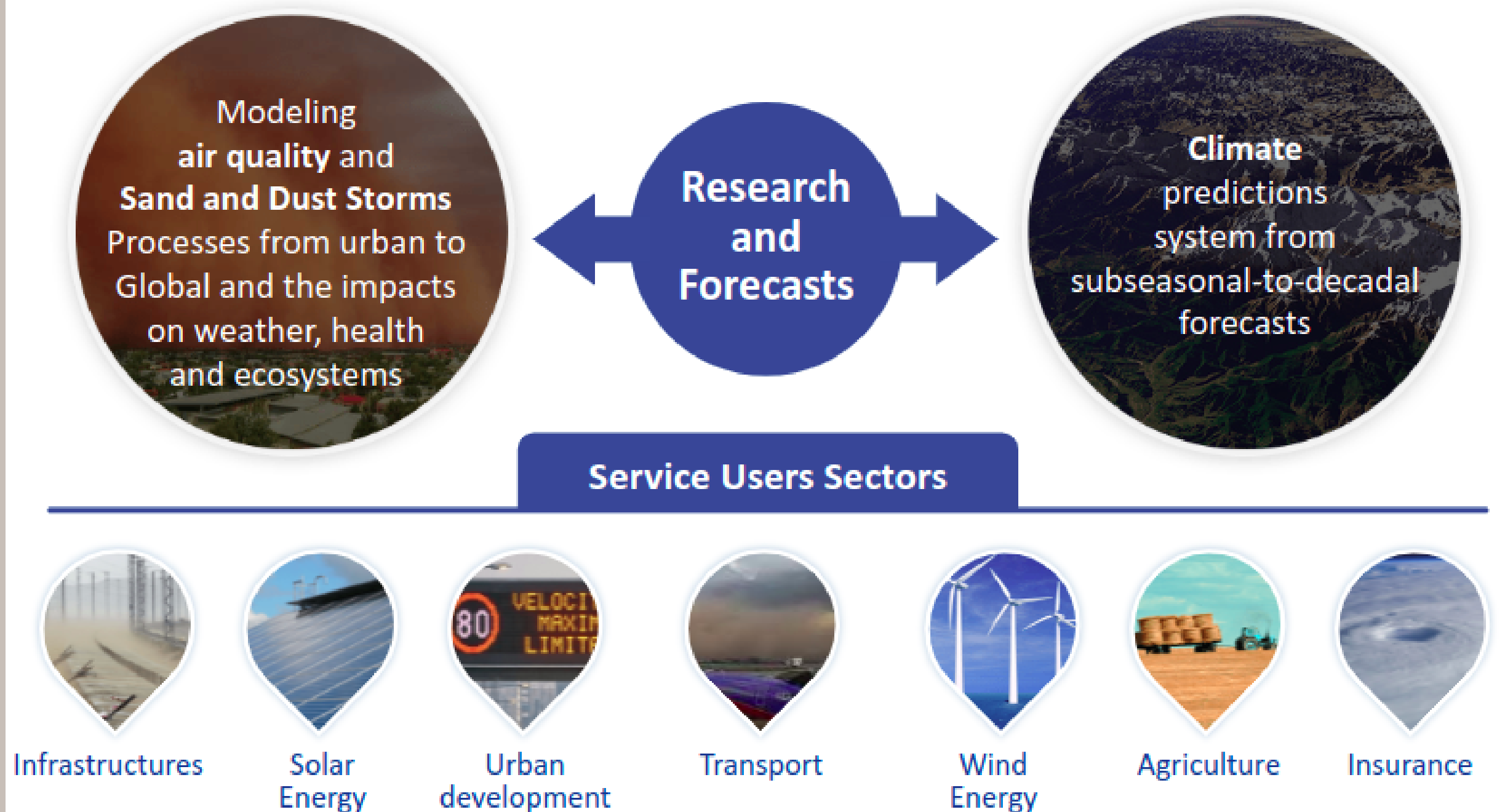
# Barcelona Supercomputing Center (BSC)



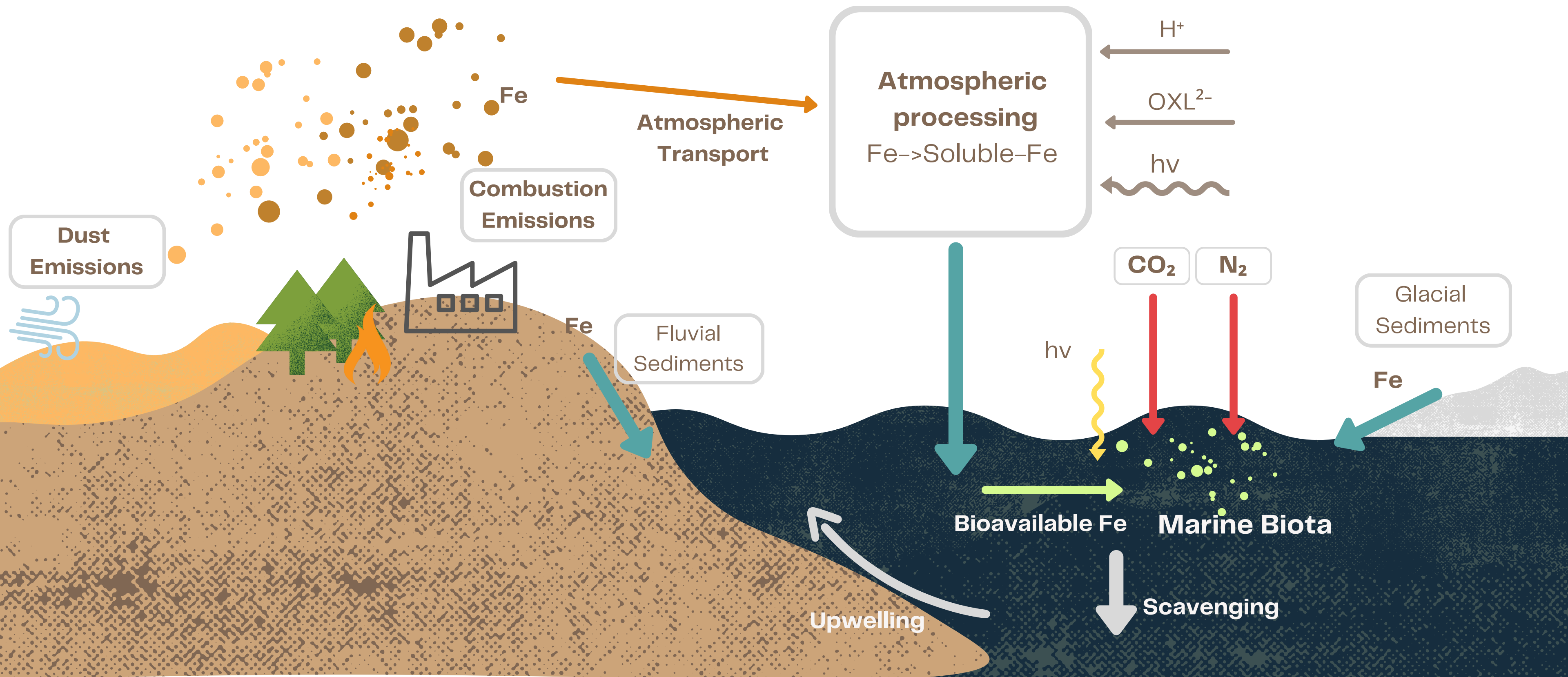


# Earth Sciences at BSC

Environmental modelling and forecasting with particular focus on weather, climate and air quality



# THE IRON CYCLE



# Pre-industrial, present and future atmospheric soluble iron deposition and the role of aerosol acidity and oxalate under CMIP6 emissions



AIR-SEA INTERACTION

ATMOSPHERIC CHEMISTRY

ATMOSPHERIC SCIENCES

CLIMATOLOGY (GLOBAL CHANGE)

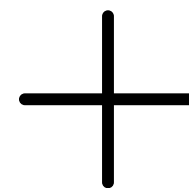
ENVIRONMENTAL SCIENCES

NUMERICAL MODELLING



Elisa Bergas-Massó , Maria Gonçalves-Ageitos , Stelios Myriokefalitakis ,  
Ron L. Miller , Twan van Noije , Philippe le Sager , Gilbert Montané Pinto ,  
Carlos Pérez García-Pando 

Earth System Model (ESM)



Scenarios



PRE-INDUSTRIAL      PRESENT      FUTURE

SSP3-7.0

SSP2-4.5

SSP1-2.6

Increase in mitigation  
strategies



# Work planned for my visit at



Douglas  
Hamilton

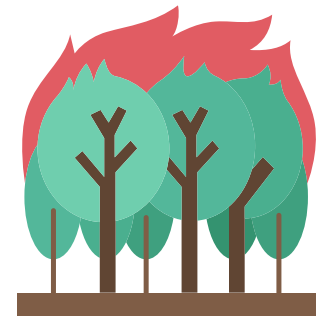
Reliable wildfire projections remain highly uncertain and challenging, primarily because the state-of-the-science ESMs are still limited in characterizing the human-vegetation-fire-climate feedback



**EARTH3-Iron & MIMI (CAM5)**

*Myriokefalitakis et al., 2022*

*Hamilton et al., 2019*



## New CMIP6 fire emission scenarios

integrating information from:

- observations,
- projections of climate,
- socioeconomic parameters
- changes in vegetation distribution
- changes in fuel loads



## New soluble Fe deposition fields for the future

+ Effects on  
oceanbiogeoc  
hemistry ?

# Thanks for your attention

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